TWO NEW *VITIS* (VITACEAE) FROM MOUNTAINOUS MEXICO

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ABSTRACT

Two new species, *Vitis bloodworthiana* and *V. jaegeriana*, are described and compared to the two most similar species in series *Occidentales*. *Vitis bloodworthiana* was found only at high elevations (1820 – 2360 m) in the Sierra Madre Occidental in the states of Sinaloa and Durango, and *V. jaegeriana* occurred in similar, high elevations in the Sierra Madre Oriental of San Luis Potosí.

RESUMEN

Dos especies nuevas, *Vitis bloodworthiana* y *V. jaegeriana*, son descritas y comparadas con las dos especies más similares en la serie *Occidentales*. Se encontró a *Vitis bloodworthiana* solamente en altitudes mayores (1820 – 2359 m) en la Sierra Madre Occidental de los estados de Sinaloa y Durango; asimismo *Vitis jaegeriana*, ocurrió en altitudes mayores, pero en la Sierra Madre Oriental del estado de San Luis, Potosí.

Two new species of *Vitis* (*Vitaceae*) were found in mountainous regions of central and western Mexico. The closest species morphologically to these listed by Standley (1924) for Mexico appears to be *V. arizonica* Engelm. These species belong to series *Occidentales* Munson, which is characterized by having leaves with small stipules (1 – 3 mm long), small fruit (4 – 11 mm dia.) and flowering during mid season when grown along with other species (Munson 1909). Series *Occidentales* includes western North American species: *V. arizonica* Engelm., *V. californica* Bentham, *V. girdiana* Munson and *V. treleasei* Munson. Table 1 provides a comparison between the new species and the two most similar species in series *Occidentales*, *V. arizonica* and *V. treleasei*.

No other species of North American *Vitis*, except *V. rotundifolia* Michx., *V. munsoniana* Planchon ex Munson and *V. monticola* Buckley are known to bear fruit with lenticels (Munson 1909). Fruit with fewer, less conspicuous lenticels were observed on some individuals of *V. treleasei* and *V. arizonica* during studies (Table 2). Both new species bear fruit with lenticels. Fruit of *V. bloodworthiana* observed from numerous vines in the field, consistently were covered with small, circular, tan lenticels that were less obvious as the fruit ripened and became black. Similar lenticels occurred on fruit of *V. jaegeriana*, although in some vines the lenticels were not conspicuous.

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VITIS BLOODWORTHIANA Comeaux, sp. nov. Fig. 1.

Caules angulatescens teres, glabrescentes ad interdum puberuli, striati, sine lenticellis; apices et folia immatura manifeste colorata cum pigmentum rubrum. Folia plerumque interdum sine lobata, longa-cordiforma ad fere deltoidea, longa-acumminata, cordata ad fere truncata lobi laterales interdum divergentes acutati ad acuminati; lamina matura glabrata limitata ad venae primarias et axillares. Baccae nigrae, glaucae, 6 – 11 mm diam.; tactae cum lenticellis circulares fulvae; semina 3.5 – 5 mm longa, 3 – 3.5 mm lata.

Vines to 10 m, stems on current season growth glabrescent or occasionally pubescent then turning glabrescent, striated; branchlets angled, becoming terete; internodes 3 – 16 cm long; nodes rarely encircled with red pigmentation; pith interrupted at nodes by a diaphragm 2 – 3 mm thick; bark brown, shredding during second season growth; lenticels absent; growing tips glabrous to glabrescent, occasionally pubescent, with white to tan trichomes, not enveloped by young leaves, *ordinarily tips and immature leaves prominently colored with red pigmentation*; bud scales glabrous to pubescent, 3 – 4 mm long, brown. *Leaves long-cordiform to nearly long-deltoid*, flat, usually 3-lobed, with lateral lobes acute to acuminate, often divergent, *apex long accuminate*, base cordate to nearly truncate, lateral sinuses acute (rounded on ground shoots); margins serrate to nearly crenate, with teeth 0.5 – 3 mm long, oriented perpendicularly to margin, towards apex or base, triangular or with concave or convex sides, occasionally ciliate, with veins extending beyond teeth, midrib with 4 – 7, usually 6 pairs of prominent veins; *lamina glabrous on both surfaces of mature leaves*, except for simple, straight, pointed trichomes and arachnose trichomes on primary veins and vein axils, 7 – 13 cm wide, 9 – 17 cm long; petioles glabrous to puberulent, striated, 3 – 10 cm long; stipules brown, glabrous to pubescent, 1 – 1.5 mm wide, 1 – 2.5 mm long, caducous; pubescence white to tan, consisting of straight, pointed, simple trichomes and arachnose trichomes. Tendrils and inflorescences absent every third node, tendrils bifurcate or trifurcate, to 20 cm long. Inflorescences 1 – 8 cm long, peduncles 1.2 – 4.5 cm long, shoulder 1 – 4.5 cm long. Flowers not observed. Fruit a berry, black, glaucous *with small, tan, circular lenticels*, 0.6 – 1.1 cm in diameter; skin thin; pulp clear, greenish to purplish. Seeds brown, irregular in shape, ovate to nearly pyriform, 3 – 3.5 mm wide, 3.5 – 5 mm long.

TYPE: MEXICO. DURANGO: 16.5 km W of Del Diablo and 35.5 km E of Tropic of Cancer via Hwy 40, 2,300 m, 1 Jul 1986, *Comeaux 4219* (HOLOTYPE: SMU; ISOTYPES: MEXU, PH).

PARATYPES. DURANGO: 39 km W of Del Diablo and 13 km E of Tropic of Cancer, via Hwy 40, 2,174 m, 1 Jul 1986, *Comeaux 4214* (SMU); 37.4 km W of Del Diablo and 14.6

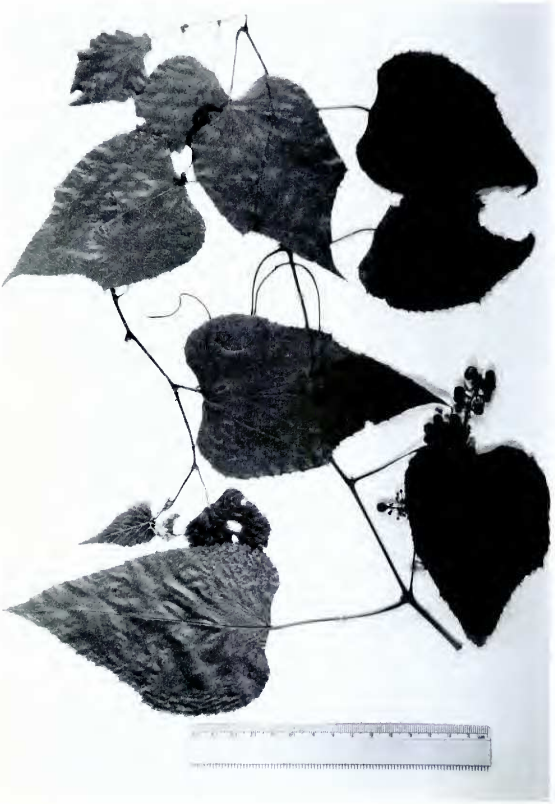

FIG. 1. Type specimen of *Vitis bloodworthiana* (*Comeaux 4219*).

km E of Tropic of Cancer via Hwy 40, 2,143 m, 1 Jul 1986, *Comeaux 4215* (SMU); 33.4 km W of Del Diablo and 18.6 km E of Tropic of Cancer via Hwy 40, 2,236 m, 1 Jul 1986 *Comeaux 4216* (SMU); 22.6 km W of Del Diablo and 29.4 km E of Tropic of Cancer via Hwy 40, 2,113 m, 1 Jul 1986, *Comeaux 4218* (SMU). **Sinaloa**: 52.3 km W of Del Diablo and 0.2 km W of Tropic of Cancer via Hwy 40, 1,820 m, Jul 1, 1986, *Comeaux 4209, 4210* and *4211* (SMU); 52.0 km W of Del Diablo and 50 m W of Tropic Cancer via Hwy 40, 1,990 m, 1 Jul 1986, *Comeaux 4212* (SMU); 49.6 km W of Del Diablo and 2.4 km E of Tropic of Cancer via Hwy 40, 2,150 m, 1 Jul 1986, *Comeaux 4213* (GA, SMU).

TABLE 1. Comparison of four species of series *Occidentales* Munson.

Character	*V. bloodworthiana* (11 Vines Sampled)	*V. jaegeriana* (11 Vines Sampled)	*V. arizonica* (12 Vines Sampled)	*V. treleasei* (15 Vines Sampled)
1. Leaves lobed	usually	*rarely	usually	usually
2. Leaves pubescent				
abaxial surface	gs[1]	gr[2], pr[3], pb[4]	gs, gr, pr, pb	gs
adaxial surface	gs	gs , gr	gs, pr, pb	gs
3. Leaf index (width/Length)				
mean	0.7	0.7	0.9	0.9
range	0.5 – 0.9	0.6 – 0.9	0.8 – 1.1	0.7 – 1.1
4. Teeth number (for 1 side of leaf)				
mean	27	20	21	30
range	20 – 41	15 – 27	14 – 26	13 – 30
5. Midrib pairs per leaf				
mean	5.4	4.3	4.0	4.0
range	4 – 7	4 – 5	3 – 5	3 – 5
6. Basal sinus width (in degrees)				
mean	107	77	73	79
range	70 – 170	30 – 150	**-30 – 175	-1 – 150
7. Stems pubescent	gs, gr, pr, pb	pr, pb	pr, pb	gs, gr, pr
8. Stem tips pubescent	gs, gr, pr	pb	gr, pr, pb	gr, pr, pb
9. Stem tip pubescence color	(g)[5], (w)[6], re[7], t[8]	(w), t, ru[9]	w, (re)	w, g, re
10. Stem tip enveloped by leaves	n[10], f[11]	n, f	f, sl[12]	n,f,sl,st[13]
11. Leaf and stem pubescence color	w, t	w, t, ru	w	w

0 = rarely observed
1 - gs = glabrous
2 - gr = glabrescent
3 - pr = puberulent
4 - pb = pubescent
5 - g = green
6 - w = white
7 - re = red
8 - t = tan
9 - ru = rufescent
10 - n = negative
11 - f = faintly
12 - sl = slightly
13 - st = strongly

*Only two leaves were observed from different vines out of many individuals examined in the field.
**Negative values relate to cases where leaf bases overlapped.

TABLE 2. Specimens of *Vitis arizonica* and *V. treleasei* examined in compatison with *bloodworthiana* and *jaegeriana*.

VITIS ARIZONICA Engelm. ARIZONA. **Cochise Co.**: 9.6 km S of Sierra Vista on Carr Canyon Rd., 1,500 m, 5 Jul 1986, *Comeaux 4236, 4237, 4238, 4239,* 4240 and *4241* (SMU). **Santa Cruz Co.**: 28 km S of Sonoita via Hwy 83, 1,500 m, 5 Jul 1986, *Comeaux 4242* (SMU); 28.5 km S of Sonoita via Hwy 83, 1,580 m, 5 Jul 1986, *Comeaux 4243* and *4244* (SMU); 1.0 km NE of Nogales via Hwy 82, 1,200 m, 5 Jul 1986, *Comeaux 4245* (SMU); 3 km W of E. city limits in Nogales via Hwy 82, 1,175 m, 5 Jul 1986, *Comeaux 4246, 4247* and *4248* (SMU).

VITIS TRELEASEI Munson. ARIZONA. **Maricopa Co.**: Fish Creek Hill bridge via Hwy 85, NW of Lost Dutchman St. Park, 700 m, 6 Jul 1986, *Comeaux 4249, 4250, 4251, 4252* and *4253* (SMU). NEW MEXICO. **Catron Co.**: 4 km NE of Aragon via Hwy 12, 2,100 m, 4 Jul 1986, *Comeaux 4226, 4227* and *4228* (SMU); 3 km NE of Aragon via Hwy 12, 2,075 m, 4 Jul 1986, *Comeaux 4229* (SMU). **Socorro Co.**: 1.5 km downstream from Water Canyon Campground between stream and road, Cibola National Forest, 2,180 m, 4 Jul 1986, *Comeaux 4220, 4221, 4222, 4223, 4224* and *4225* (SMU).

This species is named in honor of P. J. Bloodworth (1950-), grape breeder and fellow student under the direction of the late W. B. Nesbitt. Jeff is acknowledged for his assistance in the author's research, willingness to share his great knowledge, and for his devotion to the vine. Also, the epithet *bloodworthiana* seems appropriate as the dark-red growing tips and young leaves that characterize this species are distinctive in the series.

Vitis bloodworthiana was found only at high elevations (1,820 – 2,359 m) in pine forests within the Sierra de las Ventanas mountains, Sierra Madre Occidental, in Durango and Sinaloa. Annual recipitation is 40 – 80 cm and minimum temperatures range from -10° to 0° C (Rzedowski & Huerta 1978). This species occurs in dry or relatively moist, but well-drained sites, without sympatric species of *Vitis*. More field studies are needed to ascertain the overall distribution of *V. bloodworthiana*.

The long-cordiform leaves, as indicated by the small leaf index values (Table 1) for *V. bloodworthiana* and *V. jaegeriana*, easily separate these from the two similar species in series *Occidentales*. *Vitis bloodworthiana* differs from *V. jaegeriana* in having more teeth and pairs of lateral veins per leaf, consistently broader basal sinuses, and the dark red-colored pigmentation in growing tips and young leaves. All of the nearly 70 seedlings grown in containers outdoors at Galveston College from one collection of *V. bloodworthiana* (*Comeaux 4213*) easily were differentiated within two months after germination from seedlings of numerous other species of *Vitis*, including *V. treleasei* and *V. arizonica*, by their brilliant red growing tips and long-cordiform leaves. Four seedlings grown for one season, each with stems over 2 m in length, were distinguished readily from about 300 individuals of similar size, representing numerous species and hybrids, by their red growing tips and various degrees of red pigmentation in all mature leaves.

VITIS JAEGERIANA Comeaux, sp. nov. Fig. 2.

Caules angulatescens teres, puberuli obscura ad conspica, striati, sine lenticellis. Folia sine lobati plerumque, longa-cordiforma, long-accuminata, cordata, lamina matura supra glabras ad glabrescentes, infra puberuli leviter ad modice, alinquando glabrescente, trichomata fulva and ferruginea, vel alba. Baccae nigrae, glaucae, 6 – 11 mm diam., tectae cum lenticellis circulares fulvae; semina 3.5 – 5 mm longa, 3 – 5 mm lata.

Vines to 7 m, stems on current season growth puberulant to pubescent; striated; branchlets angled becoming terete; internodes 3 – 10 cm long; nodes faintly to conspicuously encircled with red pigmentation, pith interrupted at nodes by a diaphragm 2 – 3 mm thick; bark brown, shredding during second season growth, lenticels absent; growing tips pubescent, tan or rufescent, occasionally white, not enveloped by young leaves; bud scales pubescent, 2 – 3 mm long, brown. *Leaves long-cordiform*, flat, *rarely lobed*, then lobes acute, *apex long-acuminate*, base cordate, lateral sinuses acute (when present); margin serrate, with teeth 0.5 – 3 mm long, oriented perpendicular to margin, towards apex or base, triangular or with convex sides, ciliate, with or without veins extending beyond teeth, midrib with 4 to 7 pairs of prominent veins; lamina with glabrous to glabrescent adaxial surfaces on mature leaves, abaxial surfaces pubescent to puberulent, occasionally glabrescent on mature leaves, not glaucous, with or without tufts of trichomes in axils of major veins, 4 – 10 cm wide, 6 – 15 cm long, petioles pubescent to puberulent, faintly striated, 1.3 – 7.5 cm long; stipules brown, pubescent to puberulent, 1 – 1.5 mm wide, 1 – 3 mm long, caducous; pubescence tawny, rufescent or white, consisting of straight, pointed, simple trichomes or arachnose trichomes. Tendrils and inflorescences absent every third node, bifurcate, to 20 cm long. Inflorescences 1.2 – 5.8 cm long, peduncles 0.6 – 4.7 cm long, shoulders 0.2 – 2.3 cm long, occasionally replaced by a tendril. Flowers not observed. Fruit a berry, black, glaucous, *with small, tan, circular lenticels*, 0.6 – 1.1 cm in diameter; skin thin pulp clear to purplish. Seeds brown, irregular in shape, ovate to nearly pyriform 3 – 5 mm wide, 4 – 5 mm long.

TYPE: MEXICO. SAN LUIS POTOSI: 86.7 km W of jct. Hwy 70 and 69 in Rio Verde, 2,150 m, 24 Aug 1987, *Comeaux 4681* (HOLOTYPE: SMU; ISOTYPES: MEXU, PH).

PARATYPES: SAN LUIS POTOSI: 94.6 km W of jct Hwy 70 and 69 in Rio Verde, 2,400 m, 27 Jun 1986, *Comeaux 4176, 4177* and *4178* (SMU); 75.7 km l.c., 1,938 m, 28 Jun 1986, *Comeaux 4206* (SMU); 92.6 km l.c., 1,815 m, 24 Aug 1987, *Comeaux 4674 – 7* (SMU); 86.7 km l.c., 2,150 m, 24 Aug 1987, *Comeaux 4679, 4680* (SMU).

This species is named for the grape breeder, Hermann Jaeger (1844 – 1895?), Neosho, Missouri (Smith 1962). Thomas V. Munson (1843 – 1913), the world renowned grape breeder, referred to Jaeger as

FIG. 2. Type specimen of *Vitis jaegeriana* (*Comeaux 4081*).

"my esteemed co-worker" who "for more than twenty years hunt[ed] and hybridize[d] grapes" (Munson 1900). A grateful French government awarded Jaeger the Cross of the Legion of Honor in 1889 for his contributions towards saving the French wine industry, previously devastated by the phylloxera root louse (Smith 1962). Hermann and his brother, John Jaegar sent millions of grape cuttings to France as phylloxera resistant rootstocks for the native French varieties.

Vitis jaegeriana was found only at high elevations (1815 – 2400 m) in the Sierra de Juarez mountains, Sierra Madre Oriental, in San Luis Potosi. Vegetation at the collection sites is dominated by *Juniperus* spp. Minimum temperature and annual precipitation are similar to those reported for *V. blooduorthiana* (Rzedowsik, J. and L. Huerta 1978). *Vitis jaegeriana* occupies relatively drier sites than the former species, and also has no associated sympatric species of *Vitis*. Additional field work is needed to clarify the distribution of *V. jaegeriana*.

Leaves of *V. jaegeriana* examined during field work consistently were without any lobing, except for a few isolated leaves observed only on two vines. This character easily separates if from *V. blooduorthiana*, the only species in series *Occidentales* similar long-cordiform leaves. Another distinctive feature of *V. jaegeriana* is the generally tan pubescence on growing tips, and young stems and leaves.

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REFERENCES

MUNSON, T.V. 1900. American grapes. Texas Agricultural Ext. Sta. Bull. 56.

———. 1909. Foundations of American grape culture. T.V. Munson and Son, Denison, Texas.

RZEDOWSIK, J. and L. Huerta 1978. Vegetación de México. Editorial Limus, Mexico, D.F.

SMITH, G. 1962. A man who vanished into thin air after revolutionizing an industry. Evening Press, Carthage, Missouri. Nov. 10:7.

STANDLEY, P. C. 1920 – 1926. Trees and shrubs of Mexico. Contr. U.S. Natl. Herb. 23.